

WHAT IS CLAIMED IS:

*Suh A3* 1. A sprayer assembly for connection to a container of a liquid chemical to be diluted upon aspiration by a pressurized stream of carrier liquid, comprising: a housing having a carrier liquid inlet passage, a chemical liquid inlet passage and a discharge passage; a manually rotatable valve mounted within said housing having means for interconnecting said inlet passages in a first rotative position of the valve, said means comprising a carrier liquid duct and a chemical liquid duct opening into said carrier liquid duct, and said valve having means for closing the inlet passages in a second rotative position of the valve.

2. The sprayer assembly according to claim 1, wherein said valve comprises a cylinder rotatable about an axis transverse to axes of said passages, said cylinder being mounted within a cylindrical bore of said housing.

3. The sprayer assembly according to claim 2, wherein said closing means comprises an outer surface of said valve in engagement with said bore in said second rotative position.

4. The sprayer assembly according to claim 1, wherein said valve has means for interconnecting said carrier liquid inlet passage with said discharge passage in a third rotative rinse position of the valve.

5. The sprayer assembly according to claim 4, wherein the housing has a transverse bore in which said valve is mounted, said valve comprising a cylinder, and said means for interconnecting said carrier liquid passage with said discharge passage comprising passageways on an outer surface of said valve in communication with said carrier liquid duct.

6. The sprayer assembly according to claim 1, wherein a vent port in said housing communicates with a vent port in said valve in only the first rotative position for communicating the interior of the container with the atmosphere.

7. The sprayer assembly according to claim 6, wherein said valve has a cylindrical wall containing said valve vent port, a cylindrical bore in said housing for the reception of said valve, said bore having a wall containing said housing vent port.

8. The sprayer assembly according to claim 1, further comprising means on said housing for diverting the flow of liquid from said discharge orifice.

9. The sprayer assembly according to claim 8, wherein said diverting means comprises a nozzle having at least one sloping wall for deflecting the liquid flow to effect a flat spray pattern in one direction.

11. ~~10.~~ The sprayer assembly according to claim 8, wherein said diverting means comprises a rotatable nozzle having a pair of sloping walls for selectively deflecting the

liquid flow to effect flat spray patterns respectively in selected directions.

10 11. The sprayer assembly according to claim 9, wherein said sloping wall has a roughened surface for dispersing the deflected liquid.

12. The sprayer assembly according to claim 10 11, wherein said sloping walls have roughened surfaces for dispersing the deflected liquid.

13. The sprayer assembly according to claim 1, further comprising handle means on said housing for manually supporting the assembly in use.

14. The sprayer assembly according to claim 13, wherein said handle means comprises a gripping bar.

15. The sprayer assembly according to claim 1, further comprising means on said housing for coupling said carrier liquid inlet passage to a pressurized water source, said coupling means including anti-siphon means for preventing any flow of the carrier liquid toward the water source.

16. The sprayer assembly according to claim 15, wherein said anti-siphon means comprises one-way valve means.

17. The sprayer assembly according to claim 16, wherein said valve means comprises an elastomeric valve disc and a flow regulator.

18. The sprayer assembly according to claim 1, further comprising means connected to said housing for retaining a dip tube extending into the container.

19. The sprayer assembly according to claim 18, wherein said retaining means comprises a cylindrical cap having a bottom wall defining an inlet port in communication with said chemical liquid inlet passage.

20. The sprayer assembly according to claim 1, wherein said valve comprises a cylinder rotatable within a cylindrical bore of the housing, said cylinder having spaced annular seal rings, and the passages terminating in outwardly opening ports located between said seal rings.

21. The sprayer assembly according to claim 20, wherein said valve is entirely of molded polymeric material, the material forming the seal rings being softer and more compliant compared to the material forming the remainder of the valve.

22. A sprayer assembly for connection to a container of a liquid chemical to be diluted upon aspiration by a pressurized stream of carrier liquid, comprising a housing having couplings respectively for connection to a source of the carrier liquid and to a container of the liquid chemical, the housing having an integral handle for manually holding the sprayer assembly during use, the handle extending outwardly from an upper wall of the housing and having a gripper bar for hand holding.

*Sub A 23*

23. The assembly according to claim 22, wherein said gripper bar has finger indentations on the underside thereof for comfort and ease of gripping by the operator.

*Sub A 24*

24. The assembly according to claim 22, wherein said housing has coaxial carrier inlet and discharge passages, and a chemical inlet passage lying perpendicular to said coaxial passages, the gripper bar extending in a rearward direction and lying parallel to said coaxial passages.

*Sub A 25*

25. A sprayer assembly for connection to a container of a liquid chemical to be diluted upon aspiration by a pressurized stream of carrier liquid, comprising a housing having a discharge passage, means mounted on said housing having at least one sloping wall lying along a path of said passage for diverting flow of the liquid from said discharge passage to effect a flat spray pattern in one direction.

*Sub A 26*

26. The sprayer assembly according to claim 25, wherein said diverting means comprises a rotatable nozzle having a pair of sloping walls lying in the path of said passage upon nozzle rotation for selectively deflecting the liquid flow to effect flat spray patterns respectively in selected directions.

*Sub A 27*

27. The sprayer assembly according to claim 26, wherein said walls have roughened surfaces for dispersing the diverted liquid flow.

25

23

28. The sprayer assembly according to claim 26, wherein said walls are parallel and spaced apart, one of said walls having an outer deflecting surface when lying in said path, and the other of said walls having an inner deflecting surface when lying along said path.

Sub A 26

29. A sprayer assembly for connection to a container of liquid chemical to be diluted upon aspiration by a pressurized stream of carrier liquid, comprising a housing having a discharge passage through which the carrier liquid is discharged, a nozzle mounted on said housing at said discharge passage for rotation between stream and spray positions, said nozzle having at least one sloping wall lying in the path of said discharge passage, in one rotative position to effect a spray pattern upon deflection in one direction, said wall lying out of the path of the discharge passage in another rotative position to permit a stream pattern.

30.

The sprayer assembly according to claim 29, said nozzle has a pair of spaced sloping walls respectively lying in the path of the discharge passage in different rotative positions to effect spray patterns upon deflection in different directions, each of said walls lying out of the path of the discharge passage in a given rotative position to permit a stream pattern.

22

*Sub A 7/21*  
31. The sprayer assembly according to claim 30, wherein surfaces of said walls lying in said path are roughened for dispersing the spray.

*26*  
32. The sprayer assembly according to claim 29, wherein the nozzle has an axis offset from an axis of the discharge nozzle, an outer surface of one of the walls deflecting the spray in one direction and an inner surface of the other of the walls deflecting the spray in another direction.

*22*  
33. A sprayer assembly for connection to a container of chemical liquid to be diluted upon aspiration by a pressurized stream of carrier liquid, comprising a housing having a discharge passage through which the carrier liquid is discharged, said housing having a chemical liquid inlet opening and a depending support sleeve coaxial with said opening, a dip tube retainer coupled to said sleeve, said retainer having a cylindrical wall in frictional engagement with said sleeve, said cylindrical wall suspending a dip tube extending into the container, and said retainer having a transverse wall lying adjacent said inlet opening, said transverse wall having an inlet opening in open communication with said dip tube, said orifice having a predetermined size to effect a given chemical liquid-to-carrier liquid ratio.

*29*  
34. A sprayer assembly for connection to a container of chemical liquid to be diluted upon aspiration by a pressurized stream of carrier liquid, comprising a housing

having carrier liquid and chemical liquid inlet passages extending in a cylindrical bore and a discharge passage extending from said bore, said bore extending transversely to said passages, a cylindrical valve coaxial with and mounted in said bore for rotation about a central axis thereof between on and off positions, said valve having annular seal rings adjacent opposite ends in engagement with said bore, the entirety of said valve being of an injection molded polymeric material, at least the material forming the seal rings being softer and more compliant compared to the material forming the valve.

~~30~~ 35. The sprayer assembly according to claim ~~34~~ 34, wherein said valve has inlet passage closing means for closing each of said passages in the off position.

~~31~~ 36. The sprayer assembly according to claim ~~35~~ 35, wherein said closing means comprise the softer and more compliant material.

~~32~~ 37. The sprayer assembly according to claim 36, wherein the seal rings and the closing means are of co-injected material interconnected by channels provided during co-injection formation.

~~38.~~ The sprayer assembly according to claim 34, wherein the seal rings are of a co-injected material interconnected by channels provided during co-injection formation.

*Sub A8) 39*

39. A spray assembly for connection to a container of chemical liquid to be diluted upon aspiration by a pressurized stream of carrier liquid, comprising a housing having a carrier liquid inlet passage, a coaxial discharge passage, and a perpendicular related chemical liquid inlet passage, means for coupling said carrier liquid inlet passage to a pressurized water source, said coupling means including anti-siphon means permitting only one way flow of carrier liquid into said carrier liquid inlet passage.

40. The spray assembly according to claim 39, wherein said anti-siphon means comprise a one-way pressure actuated valve means.

41. The spray assembly according to claim 40, wherein said valve means comprise an elastomeric valve disc in abutment against an upstream rigid, porous regulator.

42. The spray assembly according to claim 41, wherein said valve disc is normally seated against an impervious portion of said regulator, said valve being forced to open when unseated from said stream.